passages of claims 9, 18 and 19 are fully supported by the disclosure of that Japanese application. Accordingly, the Examiner's objection is understood to be that the disclosure does not describe the subject matter of claim 9, last line, and claims 18 and 19. MPEP Section 608.01(p) defines essential material as including that which is necessary to "describe the claimed invention". The MPEP expressly states that in the event essential material is incorporated by reference to a foreign application , it will not affect the filing date of the application; Applicant must simply amend the specification to include the material incorporated by reference. Because the priority document was incorporated by reference, Applicant has now amended the specification to include the material incorporated by reference. Attached hereto is a partial translation of priority document 06-340136 which has been certified by translator Hiroyuki Toyooka. On information and belief the amendatory material added to the specification above consists of the same material incorporated by reference on page 1.

Withdrawal of the objection to the specification and rejection of the claims under 35 U.S.C. § 112, first paragraph, is solicited.

Claims 1-19 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The claims have been amended bearing in mind the Examiner's comments. It is believed that all claims are now in compliance with 35 U.S.C. § 112 and it is therefore respectfully requested that the rejection be withdrawn.

With respect to claims 12 and 16, it is respectfully noted that although a value for the high-emissivity material is not given, the claim is nevertheless believed to be definite in that two materials are compared, one having a higher emissivity than the other. Therefore, although high-emissivity is a relative term, for the purposes of distinguishing the emissivity

of the materials, it is believed that the use of the term "high-emissivity" immediately followed with a reference to material having an emissivity lower than the "high" emissivity, is proper.

If the Examiner remains of the view that the term " high" must be deleted for the claims 12 and 16 to be definite, then the favor of a telephone interview, proposing to delete this term by Examiner's amendment is requested.

Claims 1-5, 9-11, 18 and 19 were rejected under 35 U.S.C. § 103 as being unpatentable over Sakurai et al in view of Agarwal et al. Applicants respectfully traverse this rejection.

Sakurai discloses that the heater is provided inside the sensor. Agarwal discloses that a heater made of nitride or carbide can be applied to the oxygen concentration sensor.

In contrast, the present invention was obtained as the result of considering how the heater should be, in view of efficiency, when the heater is disposed inside the solid electrolyte.

More particularly, a necessary characteristic for an oxygen concentration sensor is that the sensor reach a temperature in the activation region of the solid electrolyte as soon as possible. Indeed, as explained in the background of the invention section of this application, recently, quicker heating of the solid electrolyte has been required. To achieve this requirement, one method is to flow a large current to the heater and the other method is to utilize heat from the heater effectively. If a large current is applied, however, the heater is damaged by an abrupt temperature rise. Indeed, Applicant discovered that there is a problem with the durability of the heater itself because, before the heat accumulated within the solid

electrolyte has been radiated outside, the temperature of the heater will rise quickly. Therefore, it was an object of the invention to utilize heat from the heater effectively and efficiently. That object is achieved in accordance with the invention by providing a material having a high-emissivity on the internal surface of the sensor element and/or as at least the surface of the heater. When a high-emissivity layer is provided on the internal surface of the sensor element, the high-emissivity layer absorbs heat radiated from the heater efficiently and heats the solid electrolyte sufficiently. When at least the surface of the heater is formed of a high-emissivity material and/or a high emissivity layer is formed thereon, the high emissivity layer absorbs heat from the heater efficiently and radiates it to the internal surface of the sensor element efficiently. When high-emissivity layers are provided on both the internal surface of the sensor element and on the surface of the heater, a synergistic effect is obtained. Thus, in accordance with the invention claimed, heat from the heater is efficiently transferred to the sensor element and the sensor element is sufficiently heated. The heat of the heater can be transferred to the solid electrolyte efficiently without increasing the temperature of the heater more than is needed. As a result, the solid electrolyte can be activated early. The references cited by the Examiner does not teach the foregoing unique and advantageous combination provided in accordance with the invention.

Thus, according to the present invention, to solve the specific problem of heat accumulation of the heater disposed within the solid electrolyte, a problem which does not occur with the heater positioning taught by Agarwal, Applicants have proposed for the first time that a high-emissivity layer be provided on the outer surface of the heater or the heater itself be formed from a material having high-emissivity. Because Agarwal does not

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experience the problem recognized and addressed by the Applicant, Agarwal does not teach the modification of Sakurai so as to render obvious the present invention.

Furthermore, Applicant has claimed an oxygen concentration detector having specific and unique characteristics including e.g. specified emissivities, specific materials and/or relative emissivities of the internal and external electrodes. No such teachings can be found in the primary reference cited by the Examiner. Moreover, the thickness recited in claim 18 and the porosity of claim 19 are not taught or suggested by Sakurai. It is therefore respectfully requested that, in the event this rejection is maintained, the Examiner specifically identify those passages of Sakurai which allegedly anticipate or render obvious to the unique and advantageous structure claimed.

The Examiner's reference to the prior rejections that have been withdrawn is noted. As the claims continue to require a clearance between the heater and the internal electrode, it is respectfully submitted that the arguments with respect to the references previously applied remain. Indeed, in Casanitz, granules are filled between the heater and the referenced electrode. Thus, Casanitz does not teach a clearance as claimed.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and a notice to that effect is earnestly solicited.

Respectfully submitted,

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